CLAIMS

1 - Monitoring device for dye baths in which a dye component is introduced during a period of time D characterized in that it comprises:

- a transparency sensor (140) for the liquid contained in said bath adapted to supply a signal representing the transparency of said bath for at least one spectral range and

- control means (148) adapted to determine a reference point (315) for transparency evolution of the bath corresponding to the transparency that the bath would have had if there had been no absorption of the colorant during the period of time D.

2 – Monitoring device according to claim 1, characterized in that the control means (148) are adapted to determine the end of the rinse period for said bath according to the transparency evolution of the bath.

3 – Monitoring device according to either one of claims 1 or 2, characterized in that it is adapted to be combined with a dyeing machine comprising at least one liquid circulation circuit (120) containing the dye bath, and in that it comprises a positioning means (133, 134) for positioning the transparency sensor (140) in a said liquid circulation circuit containing the dye bath.

4 – Monitoring device according to any one of claims 1 to 3, characterized in that the control means (148) are adapted to determine said reference point (315) by interpolating transparency evolution to the start of the introduction, interpolation carried out over the period of time D of the introduction of colorant into the dye bath.

5 – Monitoring device according to any one of claims 1 to 4, characterized in that the control means (148) are adapted to determine a complementary reference point for transparency evolution for clean water by memorizing a value representing the signal output by the transparency sensor (140) during a passage of clean water or white bath in the sensor.

6 – Monitoring device according to any one of claims 1 to 5, characterized in that the control means (148) are adapted to control the end of dyeing according to the evolution of the bath's transparency and at least one reference point for transparency evolution.

7 – Monitoring device according to any one of claims 1 to 6, characterized in that the control means (148) are adapted to determine the end of dyeing when the derivative for the transparency value is below a predefined value.

8 – Monitoring device according to any one of claims 1 to 7, characterized in that the control means (148) comprise closed-loop control means (136) that control the transparency sensor's (140) sensitivity according to the opacity of the liquid contained in the dye bath.

9 – Monitoring device according to any one of claims 1 to 8, characterized in that the control means (148) comprise closed-loop control means (136) that control the optic path taken by a light ray generated by the sensor in the liquid contained in the dye bath according to the opacity of the liquid contained in the dye bath.

10 – Monitoring device according to any one of claims 8 or 9, characterized in that it comprises, in addition, an adjusting means (136) for adjusting the thickness of the sample of dye bath water

whose transparency is captured by the transparency sensor (140) and the control means (148) are adapted to control the adjusting means for adjusting the thickness in such a manner that the sample thickness is increased according to the transparency of the bath.

11 – Monitoring device according to claim 10, characterized in that the adjusting means (136) that adjusts thickness is adapted to displace, with relation to each other, a light source and at least one optical fiber.

12 – Monitoring device according to any one of claims 1 to 11, characterized in that the control means (148) comprise closed-loop control means for controlling the capture period of time for the transparency sensor (140) according to the opacity of the liquid contained in the dye bath.

13 – Monitoring device according to any one of claims 1 to 12, characterized in that the control means (148) comprise closed-loop control means for controlling amplification means that amplifies the signal/noise ratio of the signal output from the sensor, according to the opacity of the liquid contained in the dye bath.

14 – Monitoring device according to any one of claims 1 to 13, characterized in that the control means (148) are adapted to utilize the Bert-Lambert law to determine the the colorant concentration as a function of the transparency of the dye bath.

15 – Monitoring device according to any one of claims 1 to 14, characterized in that the control means (148) are adapted to control the acidity and/or the salinity of the dye bath according to evolution of the transparency of the liquid contained in the dye bath.

16 – Monitoring device according to any one of claims 1 to 15, characterized in that the control means (148) are adapted to control the temperature of the bath according to evolution of the transparency of the liquid contained in the dye bath.

17 – Monitoring device according to any one of claims 1 to 16, characterized in that the control means (148) are adapted to control the quantity of colorant introduced into the dye bath according to evolution of the transparency of the liquid contained in the dye bath.

18 - Dye bath monitoring method in which a dye component is introduced during a period of time D characterized in that it comprises:

- a step (220) of capturing the transparency of the liquid contained in said bath during which a signal representing the transparency of said bath is provided for at least one color and
- a step (225) of determining a reference point for evolution of the bath's transparency corresponding to the initial transparency if the whole of the dye component had been introduced and mixed to the dye bath in a fraction of the period of time D and at the start of the period of time D.